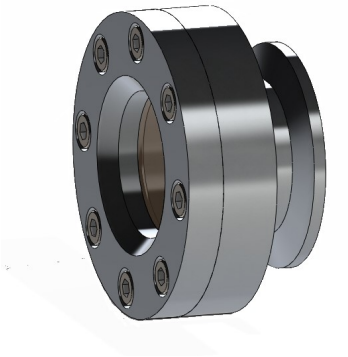
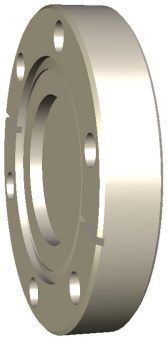
Vacuum Windows for Proton Beam Systems

Features

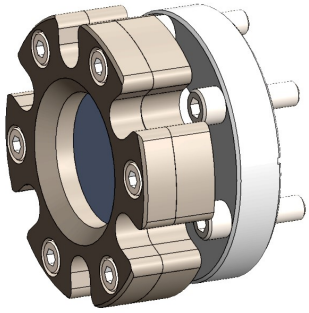
- Choice of metalized polyimide for minimal energy degradation and scattering, or bonded titanium or steel for UHV leak rates
- Choice of flange sizes.
- Windows individually helium leak-tested.



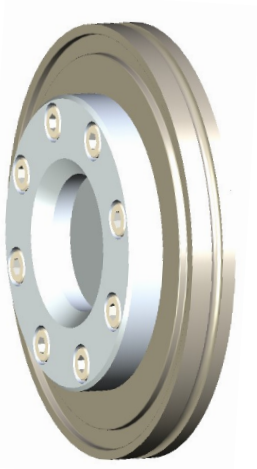
Polyimide - KF flange



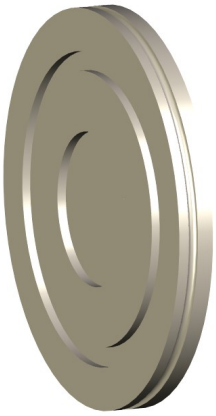
Stainless steel - CF flange



Polyimide - CF flange



Polyimide - adaption to ISO80-KF flange



Stainless steel - ISO-K flange

Applications	• Proton beam therapy systems. • Means for high energy proton beams to leave vacuum and come into atmosphere.
Options	• Choices of foil type • Choices of flange type

Specifications - beam

Ion beam type	Protons, negative hydrogen ions, helium ions, carbon ions Note: negative hydrogen ions are fully stripped to protons on passing through the foil.
Proton energy range	> = 30 MeV
Proton beam current range	<= 250 nA average beam current < = 100 µA peak instantaneous beam current (< 2 µsec)

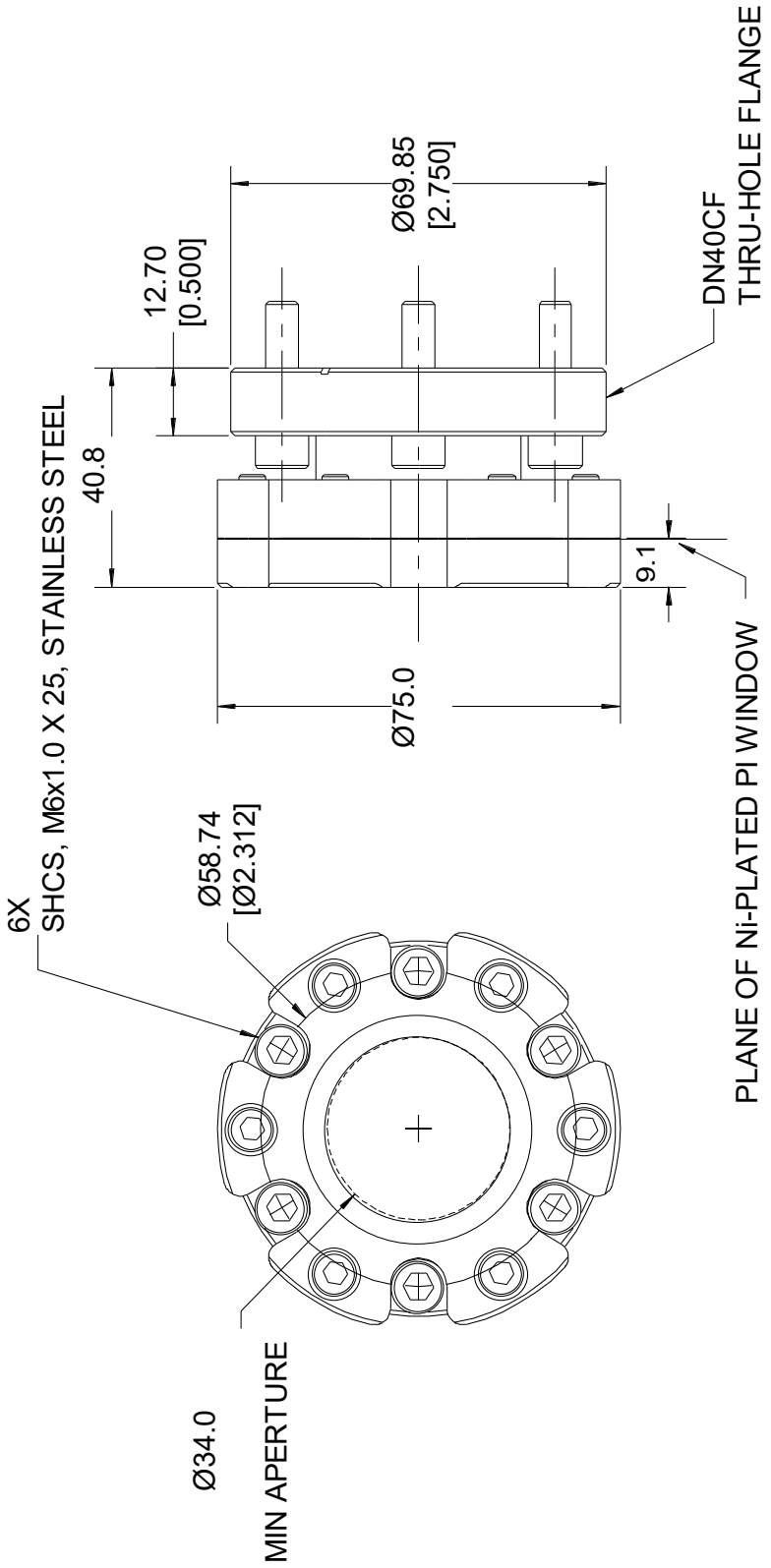
Specifications - vacuum

Model	*Mating flange*	*Window material*	*Beam window diameter (mm)*	*He leak rate (mbar l s-1)*
VWIN34PI25NI-DN40CF	DN40CF (2.75” od)	25 µm polyimide with nickel metallization	34.0	<= 1e-6
VWIN34PI50NI-DN40CF	DN40CF (2.75” od)	50 µm polyimide with nickel metallization	34.0	<= 2e-8
VWIN34PI25NI-DN40KF	KF40	25 µm polyimide with nickel metallization	34.8	<= 1e-6
VWIN34PI50NI-DN40KF	KF40	50 µm polyimide with nickel metallization	34.8	<= 2e-8
VWIN34PI25NI-DN80ISO-K	DN80ISO-K	25 µm polyimide with nickel metallization	34.8	<= 1e-6
VWIN34PI50NI-DN80ISO-K	DN80ISO-K	50 µm polyimide with nickel metallization	34.8	<= 2e-8
VWIN30SS50-DN40CF	DN40CF (2.75” od)	304 st steel 50 µm	30.0	<= 1e-9
VWIN44SS50-DN63CF	DN63CF (4.5” od)	304 st steel 50 µm	44.0	<= 1e-9
VWIN24TI15-DN40CF	DN40CF (2.75” od)	Titanium 15 µm	24.0	<= 3e-9
VWIN24TI25-DN40CF	DN40CF (2.75” od)	Titanium 25 µm	24.0	<= 1e-9
VWIN44SS50-DN100ISO-K	DNISO100K	304 st steel 50 µm	44.0	<= 1e-9

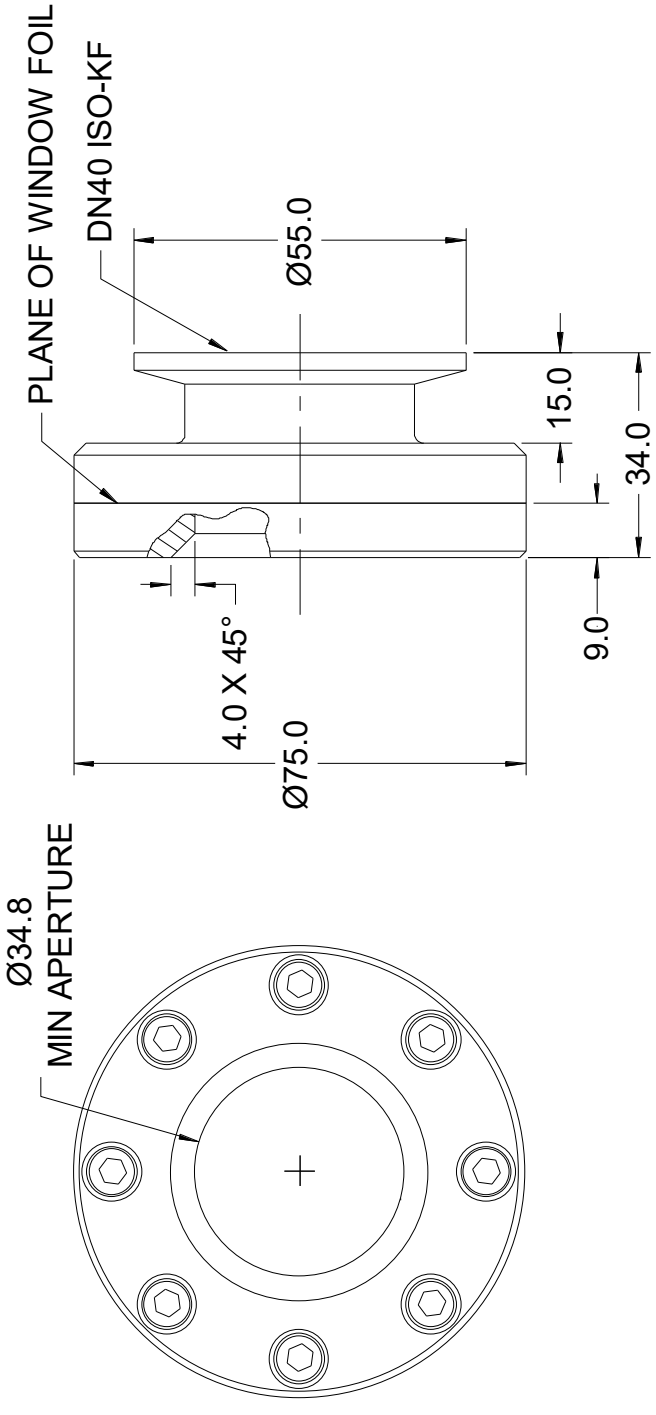
Specifications - beam interaction (MC calculation)

Model	*Proton energy degradation (MeV) @ 70 /150 / 230 MeV*	*Neutron production (per incident proton) (MeV) @ 70 /150 / 230 MeV*
VWIN34PI25NI-DN40CF	0.036 / 0.020 / 0.015	0.004 / 0.006 / 0.004 %
VWIN34PI50NI-DN40CF	0.067 / 0.038 / 0.029	0.008 / 0.010 / 0.007 %
VWIN34PI25NI-DN40KF	0.036 / 0.020 / 0.015	0.004 / 0.006 / 0.004 %
VWIN34PI50NI-DN40KF	0.067 / 0.038 / 0.029	0.008 / 0.010 / 0.007 %
VWIN34PI25NI-DN80ISO-K	0.036 / 0.020 / 0.015	0.004 / 0.006 / 0.004 %
VWIN34PI50NI-DN80ISO-K	0.067 / 0.038 / 0.029	0.008 / 0.010 / 0.007 %
VWIN30SS50-DN40CF	0.264 / 0.152 / 0.116	0.06 / 0.08 / 0.08 %
VWIN44SS50-DN63CF	0.264 / 0.152 / 0.116	0.06 / 0.08 / 0.08 %
VWIN24TI15-DN40CF	0.045 / 0.026 / 0.020	0.012 / 0.011 / 0.010 %
VWIN24TI25-DN40CF	0.076 / 0.043 / 0.033	0.022 / 0.026 / 0.026 %
VWIN44SS50-DN100ISO-K	0.264 / 0.152 / 0.116	0.06 / 0.08 / 0.08 %

VWIN34PIxxNI-DN40CF

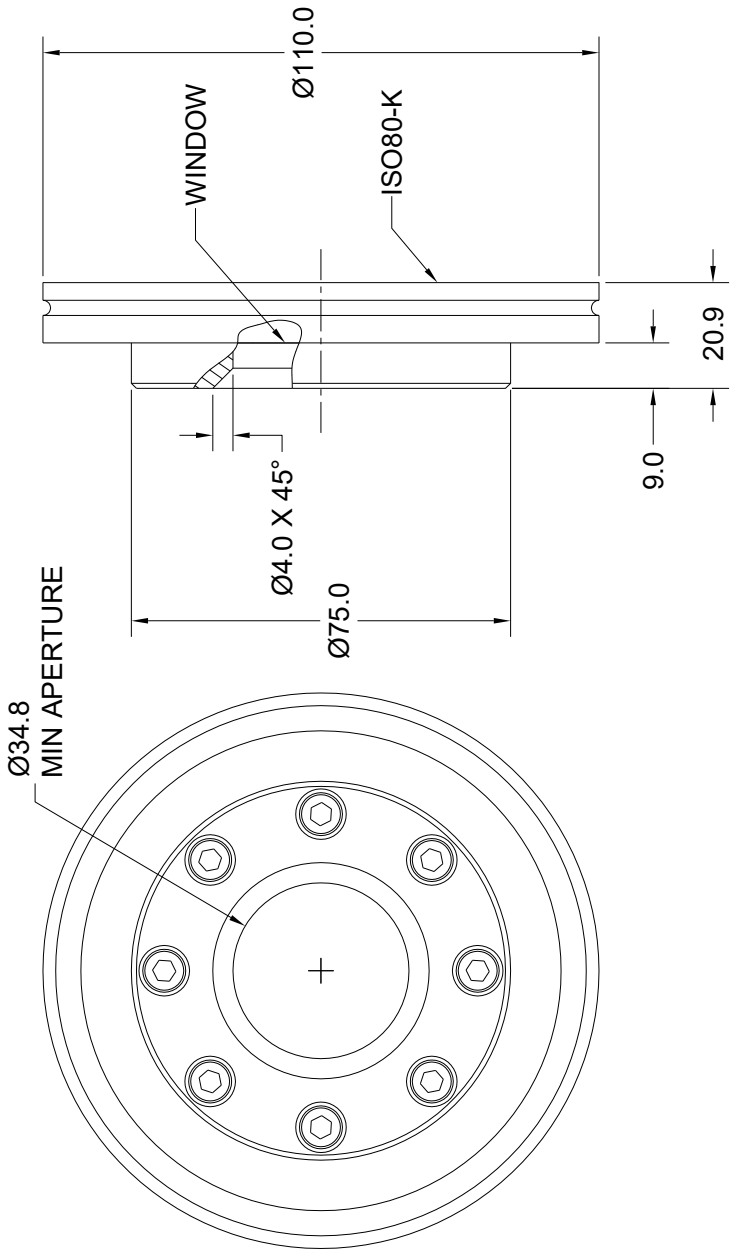


VWIN34PIxxNI-DN40KF



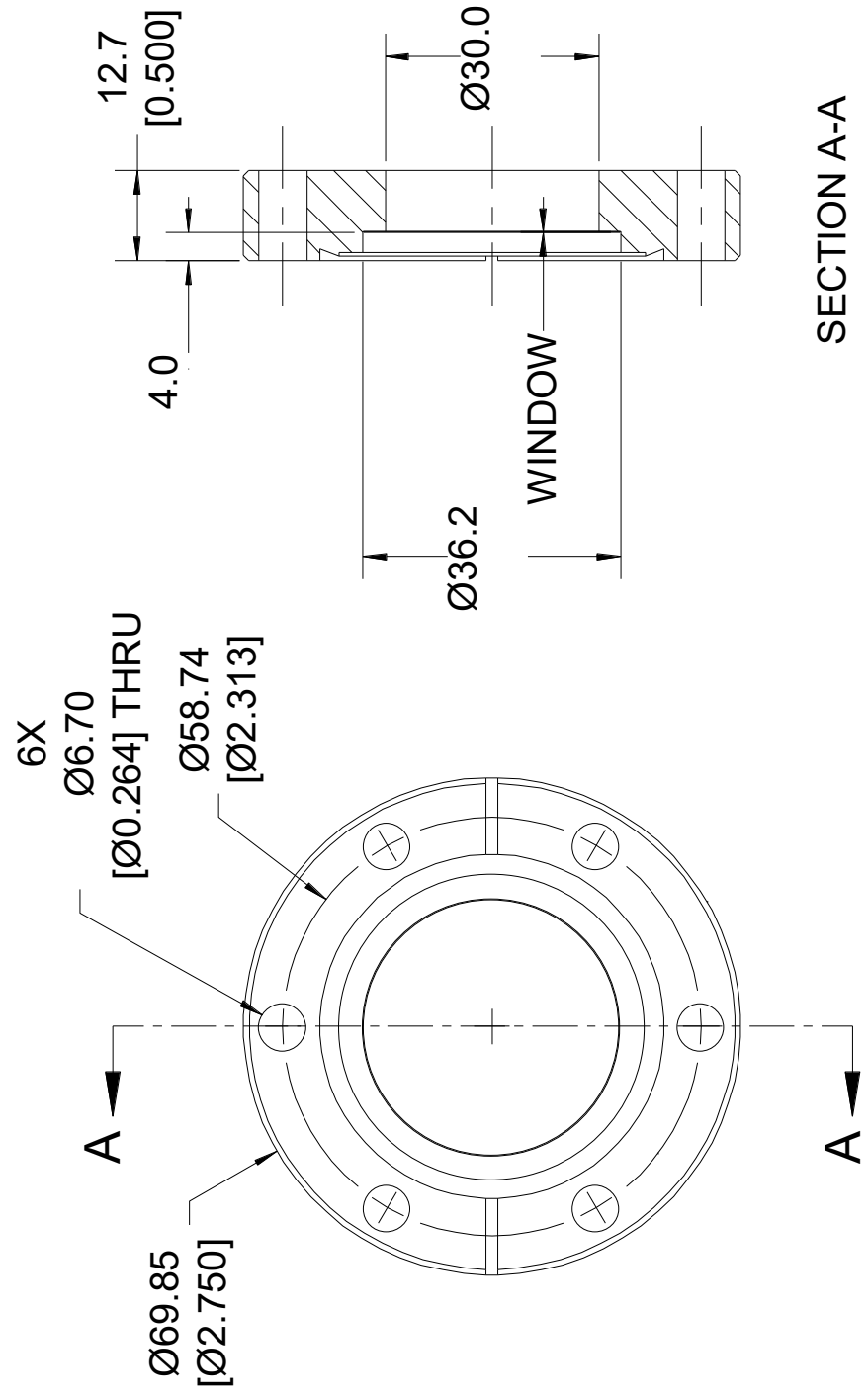
Dims mm

VWIN34PIxxNI-DN80ISO-K



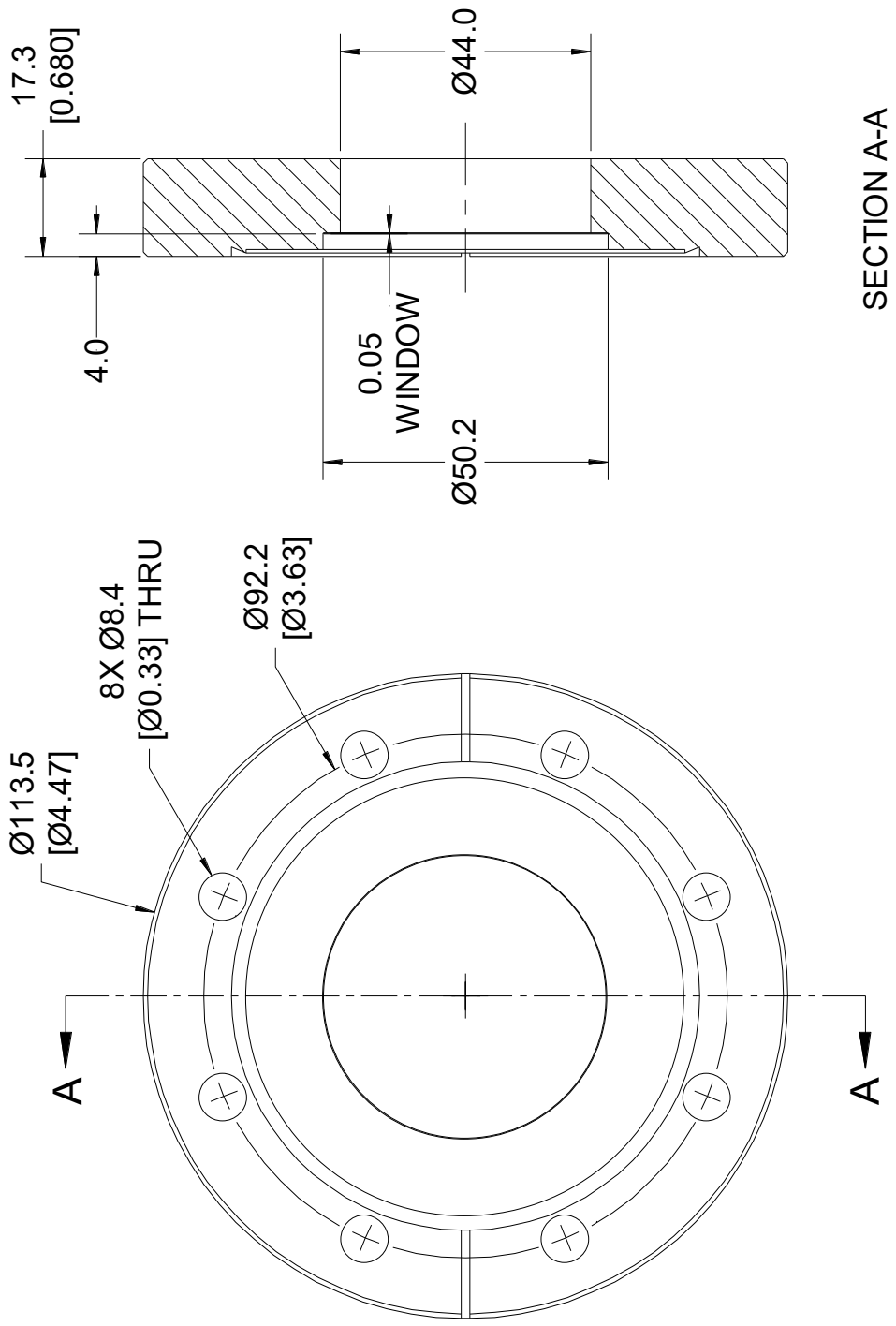
Dims mm

VWIN30SSxx-DN40CF



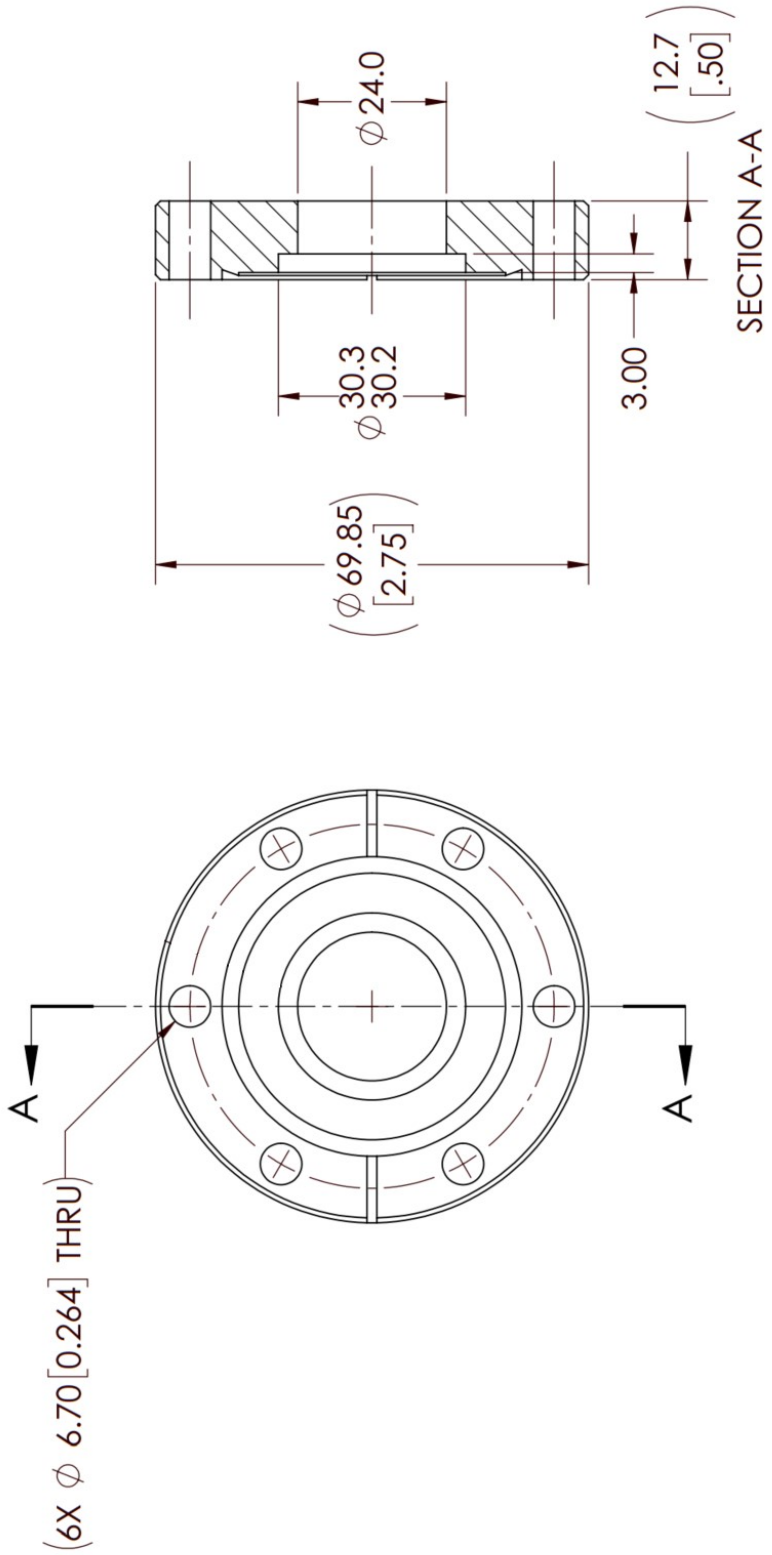
Dims mm

VWIN44SSxx-DN63CF



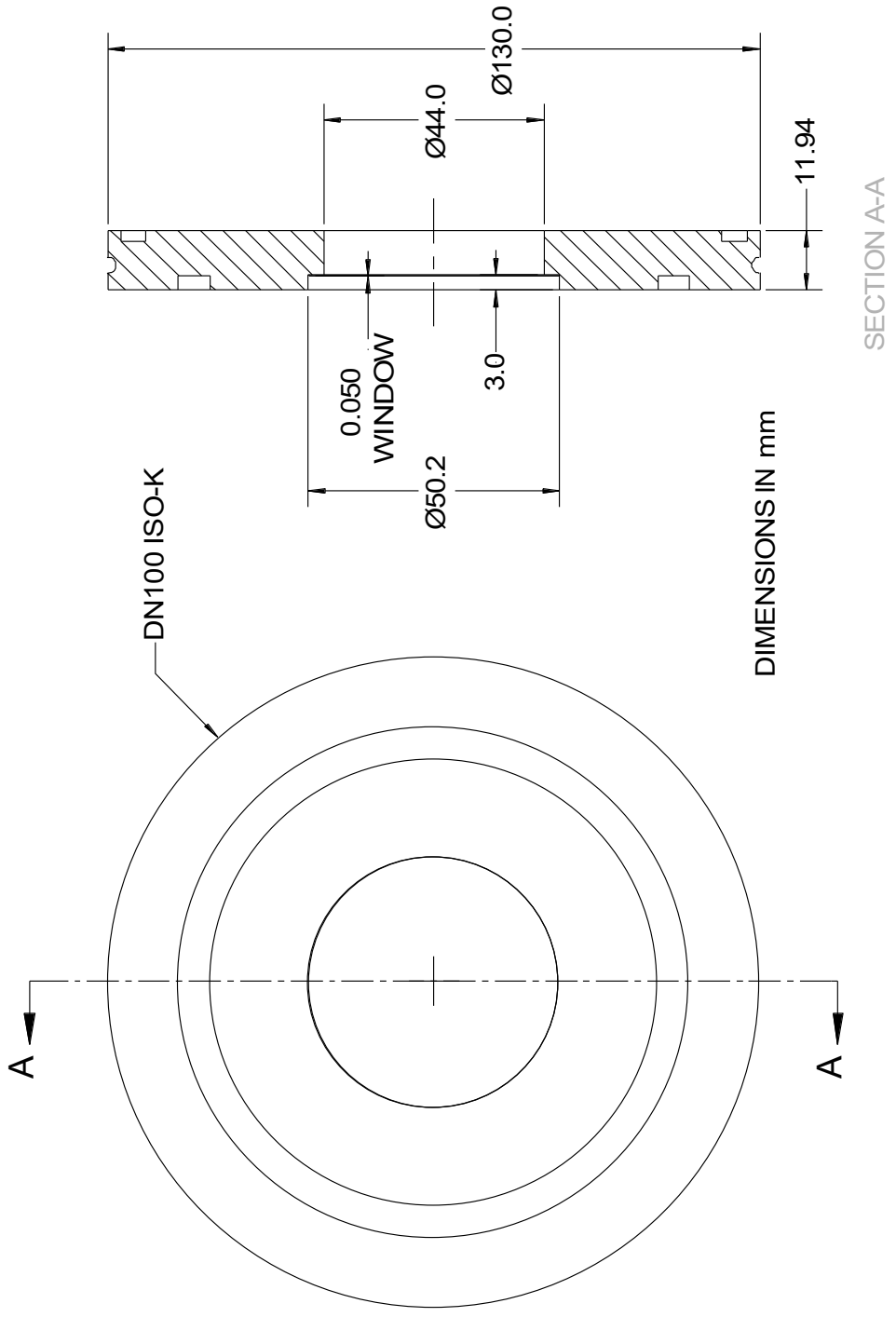
Dims mm

VWIN24TIxx-DN40CF



Dims mm

VWIN44SSxx-DN100ISO-K



Dims mm

Ordering information

VWIN34PI25NI-DN40CF	Vacuum window 34 mm diameter, 25 µm polyimide film with nickel metallization. DN40 CF metal gasket mating flange (2.75” od)
VWIN34PI50NI-DN40CF	Vacuum window 34 mm diameter, 50 µm polyimide film with nickel metallization. DN40 CF metal gasket mating flange (2.75” od)
VWIN34PI25NI-DN40KF	Vacuum window 34 mm diameter, 25 µm polyimide film with nickel metallization. DN40 KF40 mating flange, for KF centering O ring.
VWIN34PI50NI-DN40KF	Vacuum window 34 mm diameter, 50 µm polyimide film with nickel metallization. DN40 KF40 mating flange, for KF centering O ring.
VWIN34PI25NI-DN80ISO-K	Vacuum window 34 mm diameter, 25 µm polyimide film with nickel metallization. Adapted to DN80ISO-K mating flange (clamped)
VWIN34PI50NI-DN80ISO-K	Vacuum window 34 mm diameter, 50 µm polyimide film with nickel metallization. Adapted to DN80ISO-K mating flange (clamped).
VWIN30SS50-DN40CF	Vacuum window 30 mm diameter, diffusion bonded 50 µm 304 stainless steel film DN40 CF metal gasket mating flange (2.75” od)
VWIN44SS50-DN63CF	Vacuum window 44 mm diameter, diffusion bonded 50 µm 304 stainless steel film DN63 CF metal gasket mating flange (4.5” od)
VWIN24TI15-DN40CF	Vacuum window 24 mm diameter, diffusion bonded 15 µm titanium film DN40 CF metal gasket mating flange (2.75” od)
VWIN24TI25-DN40CF	Vacuum window 24 mm diameter, diffusion bonded 25 µm titanium film DN40 CF metal gasket mating flange (2.75” od)
VWIN44SS50-DN100ISO-K	Vacuum window 44 mm diameter, diffusion bonded 50 µm 304 stainless steel film DN100ISO-K mating flange (clamped)

Enquire for details of custom flange adaptions.

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